

CONTRIBUTION TO THE BRYOPHYTES OF THAILAND, I.

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The present paper gives the results of a review of various collections of bryophytes sent to the senior author by the Curator of the Forest Herbarium, Royal Forest Department, Bangkok, Thailand. The specimens have been collected by various workers dealing with the Flora of Thailand project. The specimens, many of which were already named, have been identified or verified by the junior author and an attempt has been made to adopt names and species concepts consistent with recent papers and monographs cited. In a few cases synonymy is assumed on the bases of descriptions. The original specimens are in the Forest Herbarium in Bangkok. Duplicates are in the United States National Herbarium, Washington, D.C. and/or in the Reed Herbarium, Baltimore, Maryland.

The following list includes 8 species of hepaticae (with two new combinations) and 55 species of Musci. Ecological data in regard to elevation and substrata are included where available.

HEPATICAE

Lepidoziaceae

Bazzania desciscens (Steph.) Robinson, comb. nov. (Mastigobryum desciscens Steph., Bull. Herb. Boiss., II, 8: 862-863. 1908). Peninsula: Nakawn Srithamarat, Khao Luang, elev. 1600 m. June 25, 1953. Phloenchit 594 A. (Flora of Thailand 1172A).

Bazzania spiralis (Reinwardt, Blume et Nees) Robinson, comb. nov. (Jungermannia spiralis R., Bl. et N., Nova Acta Acad. Leop.-Carol., 12: 231. 1824. Peninsula: Nakawn Srithamarat, Khao Luang, on wet log. June 25. 1953. Phloenchit 593. (Flora of Thailand 1171).

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Frullaniaceae

Frullania tamarisci (L.) Dum., subsp. moniliata (R., Bl. et N.) Kamim. Central: Khao Khio, Khao Yai, N. Rachasima. elev. 1400 m., on twigs and shrubs. Nov. 11, 1963. Tem Smitinand 8406.

Lejeuneaceae

Caulalejeunea fruticosa (L. et G.) Steph. Southeast: Trad, Chang Klav, Hui Rang, elev. 50 m., on branches of Mangifera indica, in village. Jan. 26, 1952. Tem Smitinand 1447. (Flora of Thailand 6670).

Cololejeunea oshimensis (Horik.) Benedix Central: Khao Khio, Rachasima, elev. 1400 m., on leaves in evergreen forest. Nov. 11, 1963. Tem Smitinand 8419A.

Colura acroloba (Mont.) S.J.A. Central: Khao Khio, Rachasima, elev. 1400 m., on leaves in evergreen forest. Nov. 11, 1963. Tem Smitinand 8419B.

Thysananthus aculeatus Herz. Peninsula: Khao Luang, Nakawn Srithamarat, elev. 600 m., on bark of tall tree, in hill evergreen forest. Nov. 5, 1959. Tem Smitinand 1027. (Flora of Thailand 5816).

Schistochilaceae

Schistochila aligera (Nees) Steph. Peninsula: Nakawn Srithamarat, Khao Luang, elev. 1600 m., on wet log on hill ridge. June 25, 1953. Phloenchit 594B. (Flora of Thailand 1172B); Kiriwong, Khao Luang, on tree trunk in evergreen forest. Aug. 5, 1951. Tem Smitinand 886. (Flora of Thailand 5775).

MUSCI

Sphagnaceae

Sphagnum junghuhnianum Doz. et Molk. Northeast: Phu Krading, elev. 1200 m., on moist rock in canyon, 4 km. NW of Rock Cabin. Feb. 28, 1959. Th. Sorensen, Kai Larsen & B. Hansen. (Flora of Thailand 6457).

Sphagnum khasianum Mitt. Northeast: Phu Krading, elev. 1200 m., on wet soil near waterfall, 4 km. NW of Rock Cabin. Feb. 28, 1959. Th. Sorensen & Kai Larsen. (Flora of Thailand 6452). Fitting the broad concept of S. subsecundum Nees. Det. by B. Hansen as S. luzonense Warnst.

Sphagnum palustre L. Northeast: Phu Krading, elev. 1200 m., on wet soil at stream near Rock Cabin. Feb. 29, 1952. Kai Larsen & Bertel Hansen. (Flora of Thailand 6460); Loei, Phu Krading, Huay Hinkong, elev. 1300 m., common among grasses on moist rocky ground in pine forest. Mar. 12, 1952. Tem Smitinand 1158. (Flora of Thailand 6653). Det. by P. Arens as S. siamense Dix., and by G.O.K. Sainsbury as S. pseudocymbifolium C.Mull.; Phu Krading, elev. 1200 m. Mar. 19, 1958. Th. Sorensen & Kai Larsen. (Flora of Thailand 2371). Det. Bertel Hansen.

Fissidentaceae

Fissidens hollianus var. semperfalcatus (Dix.) Norkett. (F. semperfalcatus Dix., det. by E.B. Bartram). Southeast: Chantaburi, Makham, Khao Mai Kaew, elev. 120 m., moss on ant-hill in moist locality. Oct. 6, 1954. Bunnak 258. (Flora of Thailand 9377).

Ditrichaceae

Garckea phascoides (Hook.) C.Mull. Northern: Chiangmai, Mae Tang, Ban Mae Talai, elev. 445 m., on wet ground. Sept. 21, 1964. R. Suvarnasara 66.

Wilsoniella pellucida var. acutifolia (Broth.) Dix. Central: Saraburi, Nam Tok, Sam Lan, on sandy ground. Nov. 14, 1964. R. Suvarnasara 71; Northern: Chiangmai, Mae Tang, Ban Mae Talai, elev. 445 m., on wet ground. Sept. 21, 1964. R. Suvarnasara 69; (Selangor, Batu Caves, Dixon, p. 3. 1926, as Wilsoniella acutifolia Broth., ined.).

Dicranaceae

Campylopus gracilis (Mitt.) Jaeg. (?) Northern: Chiangmai, Haud, Baw Luang, elev. 1434 m., on wet ground. Sept. 27, 1964. R. Suvarnasara 60.

Campylopus richardii (Schwaegr.) Brid. sensu Dixon, as det. by H. Robinson; det. by P. Arens as C. serrulatus Lac.; det. by Sainsbury as C. siamensis Dix.; det. by Bartram as C. umbellatus (Arn.) Bartr.). Northeast: Loei, Phu Krading, Huay Hinkawng, elev. 1300 m., on rocks along edge of precipice. Mar. 12, 1952. Tem Smitinand 1156. (Flora of Thailand 6652).

Dicranella brasiliensis (Dub.) Bartr. Northeast: Chiangmai, Haud, Baw Luang, elev. about 1434 m., on wet ground. Sept. 27, 1964. R. Suvarnasara 61.

Leucoloma molle (C.Mull.) Mitt. Southeast: V. Chanburi, Pong Nanrawn, Khao Soidao, elev. 1700 m., on tree trunks in hill evergreen forest. Jan. 23, 1956. Tem Smitinand 3227. (Flora of Thailand 14803).

Leucobryaceae

Leucobryum bowringii Mitt., var. sericeum (Broth.) Dix. Northeast: Loei, Phu Krading, Dawn Pawai, elev. 1300 m., on roots of trees in hill evergreen forest. Mar. 8, 1952. Tem Smitinand 1098. (Flora of Thailand 6646). Det. G.O.K.Sainsbury.

Leucobryum javense (Brid.) Mitt. Northeast: Loei, Phu Krading, Thamsaw, elev. 1300 m., common on dry rocks by stream along edge of pine forest. Mar. 9, 1952. Tem Smitinand 1104. (Flora of Thailand 6637). Det. by P. Arens; Central: Khao Khio, Khao Yai, Rachasima, elev. 1400 m., moss on tree. Nov. 11, 1963. Tem Smitinand 8409.

Leucobryum scalare C.Mull. Southeast: Trat, Kaw Chang, Khao Nang Aen, elev. 190 m., on decaying log in moist locality. Mar. 20, 1955. Bunnak 375. Det. E.B.Bartram as L. aduncum Doz. et Molk.; Northeast: Loei, Phu Krading, Thamsaw, elev. 1300 m., on bark on oak trees in pine-oak forest. Mar. 10, 1952. Tem Smitinand 1112. (Flora of Thailand 6644); same loc., on oak trees. Oct. 11, 1954. Tem Smitinand 2001. (Flora of Thailand 12227). Det. by Bartram as L. bowringii Mitt.

Octoblepharum albidum Hedw. Northeast: Loei, Phu Krading, Thamsaw, elev. 1300 m., on bark of oak trees. Mar. 10, 1952. Tem Smitinand 1113. (Flora of Thailand 6634). Det. by G.O.K.Sainsbury.

Calympereaceae

Syrrhopodon albovaginatus Schwaegr. Peninsula: Surat, Bangbao, elev. less than 100 m., on wet bog in evergreen jungle. Aug. 6, 1955. Tem Smitinand 2823. (Flora of Thailand 12711). Det. by E.B.Bartram.

Pottiaceae

Hyophila involuta (Hook.) Jaeg. Southeast: Chanburi, Klung, Makawk, elev. 130 m., on moist rocks. Oct. 28, 1954. Bunnak 291. (Flora of Thailand 9359). Det. E.B.Bartram.

Funariaceae

Funaria hygrometrica Hedw., var. calvescens (Schwaegr.) Mont. (F. calvescens Schwaegr., det. by E.B.Bartram). Northeast:

Loei, Phu Krading, elev. 1300 m., common on earth in pine forest. Oct. 1, 1954. Tem Smitinand 1997. (Flora of Thailand 1223); Central: I. Phetchabun, Lomkao, Namnao, elev. 600 m., in earth along edge of evergreen forest. May 22, 1951. Tem Smitinand 505. (Flora of Thailand 5143).

Bryaceae

Bryum coronatum Schwaegr. Southeast: Chanburi, Makham, elev. 130 m., on rocks in moist locality. Nov. 1, 1954. Bunnak 297. (Flora of Thailand 9509).

Bryum garutense Fleisch. (?) Northeast: Loei, Phu Krading near Rest Home, elev. 1300 m., common on stones. July 8, 1959. Tem Smitinand 5885. (Flora of Thailand 24121). Det. by F. Floto as B. sericeum ?

Rhodobryum roseum (Hedw.) Limpr. Northeast: Loei, Phu Krading, Sam Khae, elev. 1100 m., erect moss on rocks in hill evergreen forest. Mar. 30, 1952. Tem Smitinand 1256. (Flora of Thailand 7785). Det. G.O.K.Sainsbury.

Mniaceae

Orthomnion bryoides (Griff.) Norkett Northern: Chiang-mai, Pong, Phu Langka, elev. 1300 m., on twig of tall tree in evergreen jungle. June 29, 1954. Tem Smitinand 1752.

Rhizogoniaceae

Rhizogonium spiniforme (Hedw.) Bruch Peninsula VII: Nakawn Srithamarat, Khao Luang, elev. 600 m., on rocks and tree trunks in evergreen forest. Aug. 5, 1951. Tem Smitinand 885. (Flora of Thailand 5772). Det. P. Arens.

Bartramiaceae

Bartramidula bartramoides (Griff.) Wijk & Marg. Central: Saraburi, Nam Tok, Sam Lan, elev. 30 m. Nov. 14, 1964. R. Suvarnasara 72.

Orthotrichaceae

Macromitrium orthostichum Nees Peninsula: Nakawn Srithamarat, Khao Luang, on rhizome of epiphytic fern, in evergreen forest, elev. 600 m. Nov. 5, 1951. Tem Smitinand 1033.

Rhacopilaceae

Rhacopilum schmidii (C.Müll.) Jaeg. Northeast: Loei, Phu Krading, Sam Khae, elev. 1000 m., on tree trunk in evergreen forest. Oct. 1, 1954. Tem Smitinand 2000. (Flora of Thailand 12224). Det. by E.B.Bartram.

Hedwigiaceae

Cleistostoma ambigua (Hook.) Brid. Northwest: Chiangmai, Chiangdao, north slope, elev. 1900 m., common on rocks on the ridge. Feb. 17, 1958. Tem Smitinand 4226. (Flora of Thailand 22686). Det. by E.B.Bartram.

Trachypodaceae

Trachypodopsis serrulata (P.Beauv.) Fleisch. Northern: Chiangmai, Chiangdao, north slope, elev. 1900 m., common on rocks. Feb. 17, 1958. Tem Smitinand 4229. (Flora of Thailand 16695) Det. by E.B.Bartram as T. crispulata (Hook.) Fleisch.

Pterobryaceae

Calyptothecium wightii (Mitt.) Fleisch. Southeast: Trat, Huay Raeng, elev. 50 m., on base of Mangifera indica root, in village. July 27, 1952. Tem Smitinand 1452.

Pterobryopsis nematosum (C.Müll.) Dix. (Calyptothecium nematosum (C.Müll.) Fleisch.). Peninsula: Nakawn Srithamarat, Khiriwong, elev. 100 m., on tree trunk in plantation. Apr. 15, 1952. Tem Smitinand 1291. (Flora of Thailand 7791).

Meteoriaceae

Meteoropsis ancistrodes (Ren. et Card.) Broth. Northwest: Chiang Dao, above "Hill Station", elev. 4500 ft., on tree trunk in montane forest. Dec. 6, 1957. P.W.Richards 5482. Det. by Richards & Giesy as M. squarrosa (Hook.) Fleisch.

Papillaria formosana Nog., var. pilifera Nog. Northwest: Chiangmai, Chiangdao, north slope, elev. 1800 m., pendulous on trees in evergreen forest. Feb. 17, 1958. Tem Smitinand 4230. (Flora of Thailand 16094). Det. by E.B.Bartram as P. auriculata var. gracilis Bartr., var. nov.

Neckeraceae

Homaliodendron microdendron (Mont.) Fleisch. Northeast: Loei, Phu Krading, Sam Khae, elev. 1100 m., on rocks and bases of tree trunks in evergreen jungle. Mar. 30, 1952. Tem Smitinand 1254. (Flora of Thailand 6625). Det. by P. Arens.

Hookeriaceae

Chaetomitropsis glaucocarpa (Reinw.) Fleisch. Northeast: Phu Krading, elev. 1300 m., on small shrub in hill evergreen forest. Mar. 8, 1952. Tem Smitinand 1097. Det. P. Arens; Southeast: Chaburi, Pong Nam Rawn, Khao Kadak, elev. 500 m., on logs and rocks by stream in evergreen jungle. May 1, 1956. Tem Smitinand 3342.

Leskeaceae

Claopodium assurgens (Sull. & Lesq.) Card. Northeast: Loei, Phu Krading, Dawn Pawai, elev. 1300 m., creeping on bark of tree in hill evergreen forest. Mar. 8, 1952. Tem Smitinand 1099. (Flora of Thailand 6647). Det. P. Arens.

Thuidium cymbifolium (Doz. et Molck.) Bry. Jav. Northeast: Loei, Phu Krading, Sam Khae, elev. 1100 m., on rock in dry hill evergreen forest. Mar. 6, 1952. Tem Smitinand 1069. (Flora of Thailand 6641). Det. by P. Arens.

Thuidium glaucinum (Mitt.) Jaeg. Northern: Chiangmai, Pong, Phu Langka, elev. 1300 m., on tree trunk in evergreen jungle. June 29, 1954. Tem Smitinand 1753 and 1751.

Brachytheciaceae

Rhynchostegium celebicum (Lac.) Jaeg. Northeast: Loei, Phu Krading, Sam Khae, elev. 1100 m., on rocks in evergreen forest. Mar. 30, 1952. Tem Smitinand 1253. (Flora of Thailand 6624). Det. P. Arens

Sematophyllaceae

Acroporium baviense (Bosch.) Broth. Northeast: Loei, Phu Krading, Thamsaw, elev. 1300 m., on bark of trees in oak forest. Mar. 10, 1952. Tem Smitinand 1114. (Flora of Thailand 6635). Det. by Sainsbury as A. brevipes (Broth.) Broth. These specimens have the characters given for A. brevipes of the Philippines by Bartram (1928). On the basis of description, the previously named A. baviense of Tonkin is apparently the same species.

Acroporium stramineum (Reinw. et Hornsch.) Fleisch. Central: Khao Khio, Rachasima, elev. 1400 m., on twigs in evergreen forest. Nov. 11, 1963. Tem Smitinand 8420.

Chionostomum angustifolium Dix. Central: Khao Yai Nak-hawn, Rachasima, elev. 1400 m. Nov. 11, 1963. Tem Smitinand 8416. Previously known only from the type locality in Laos (Dixon, 1936).

Sematophyllum caespitosum (Hedw.) Mitt. Southeast: Chanburi, Pong Nam Rawn, Pratrung, elev. 600 m., on rocks in stream. Jan. 21, 1956. Tem Smitinand 3195. (Flora of Thailand 14806). Det. E.B.Bartram.

Sematophyllum microcladium (Doz. et Molk.) Broth. Northern: Chiangmai, Doi Sutep, Pui, elev. 1200 m., on tree in open hill forest. Mar. 21, 1951. Tem Smitinand 160. (Flora of Thailand 6194). Det. G.O.K.Sainsbury.

Taxithelium batanense Bartr. (?) Peninsula: Srithamarat, Khao Luang, elev. 800 m., on shrub stem in hill evergreen forest. Apr. 20, 1952. Tem Smitinand 1293. (Flora of Thailand 7788). Det. by Sainsbury as T. magnum Fleisch.; Southeast: Trat, Huay Raeng, Pak Phreed, elev. under 50 m. June 22, 1952. Tem Smitinand 1422. (Flora of Thailand 7927). Det. by Sainsbury as Isopterygium bancanum (Bry. Jav.) Jaeg.

Taxithelium distratum (Brid.) Broth. Southeast: Trat, Huay Raeng, Dong, Maduea, elev. under 50 m., epiphytic on liana in evergreen forest. June 30, 1952. Tem Smitinand 1351. (Flora of Thailand 6667).

Taxithelium lindbergii (Bosch et Lac.) Ren. et Card. Peninsula: Nakawn Srithamarat, Khao Luang, elev. 600 m., on twig in evergreen forest. Nov. 21, 1951. Phloenchit 149. (Flora of Thailand 5821). Det. by P. Arens as T. clastobryoides Dix.(?).

Trismegistia rigida (H. et R.) Broth. Peninsula: Srithamarat, Khao Luang, terrestrial in mass on rocks and logs in hill evergreen forest, elev. 1000 m. Apr. 20, 1952. Tem Smitinand 1292. (Flora of Thailand 7790). Det. G.O.K.Sainsbury.

Hypnaceae

Ectropothecium cyperoides (Hook.) Jaeg. Peninsula: Nakawn Srithamarat, Khao Luang, elev. 600 m., on log in hill evergreen forest. Nov. 5, 1951. Tem Smitinand 1028. (Flora of Thailand 8423). Det. by Sainsbury as E. siamense Dix.

Ectropothecium intorquatum (Doz. et Molk.) Jaeg. Peninsula: Nakawn Srithamarat, Khao Luang, elev. 1700 m., in earth in evergreen forest. June 26, 1953. Phloenchit 613. (Flora of Thailand 10086).

Ectropothecium monumentorum (Duby) Jaeg. Peninsula: Nakawn Srithamarat, Khao Luang, elev. 1700 m., on decaying log in evergreen forest. July 30, 1953. Phloenchit 656. (Flora of Thailand 10175).

Foreauella orthothecia (Schw.) Dix. et Varde Northeast: Loei, Phu Krading, Sam Khae, elev. 1100 m., on wet log in dry hill evergreen forest. Mar. 6, 1952. Tem Smitinand 1067. (Flora of Thailand 6639). Det. by P. Arens.

Isopterygium minutirameum (C.Mall.) Jaeg. Peninsula: Nakawn Srithamarat, Thapchang, elev. 400 m., on roots of Areca catechu. Dec. 25, 1951. Phloenchit 263. (Flora of Thailand 7786).

Polytrichaceae

Pogonatum gymniophyllum Mitt. Peninsula: Nakawn Srithamarat, Khao Luang, elev. 600 m., on rocks in evergreen forest. Aug. 30, 1952. Phloenchit 411. (Flora of Thailand 8924).

Pogonatum junghuhnianum (Doz. et Molk.) Bosch et Lac. Northwest: Chiangmai, Doi Sutep, elev. 1083 m., on wet ground. Sept. 16, 1957. Khantachai 683. (Flora of Thailand 15936).

Pogonatum spurio-cirratum Broth. Northeast: Loei, Phu Krading, Dawn Pawai, elev. 1300 m., on wet rocks by stream in hill evergreen forest. Mar. 8, 1952. Tem Smitinand 1102. (Flora of Thailand 6649). Det. by Sainsbury as P. cirratum (Sw.) Brid.; det. by P. Arens as P. macrophyllum Doz. et Molk.; Loei, Phu Krading, Huay Thamyai, elev. 1300 m., common on rocky stream banks in evergreen forest. May 11, 1951. Tem Smitinand 380. (Flora of Thailand 5145). Det. by P. Arens as P. junghuhnianum.

Rhacelopus pilifer Doz. et Molk. Southeast: Chanburi, Makham, Thung Khui, elev. 130 m., moss on ant-hill. Nov. 10, 1954. Bunnak 306. (Flora of Thailand 9519). Det. by E.B.Bartram.

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